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ABSTRACT

A teacher of English-as-a-Second-Language (ESL) reading courses at Doshisha University (Japan) describes classroom techniques and activities involving use of the computer and assesses the benefits, difficulties, and instructional results. Data are drawn from two ESL classes using computer-based instruction (CBI) offered in 1 year. The primary course objective was that students be able to read English passages without translating them into Japanese. The report describes the course's organization for each of two semesters and the adjustments made by the teacher as the result of attending a summer course on computer-assisted instruction between the semesters. Descriptions of course activities include the orientation provided to students and the class activities, exercises, and assignments. Typing skills were taught in the first semester so students could use computers comfortably for exercises and assignments. Overall results of the first semester are also discussed, including attendance, student work rate, test scores, performance patterns on class exercises, and problem areas in student comprehension and performance. A brief bibliography is included. (MSE)

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Effects of English CBI at Doshisha University

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Abstract

In this paper, I have described reading courses that I taught using computers in 1991 at Doshisha University. These courses started out with an orientation to the computers and to the rules of the class. Students did typing programs in order to learn typing skills necessary for the class, reading tests, and various reading assignments with questions, both on paper and using the computer. In addition to describing the assignments and their results, I have discussed what I learned through the experience of developing materials and teaching the classes about the characteristics of good and bad materials for teaching reading with computers.

Introduction

As personal computers have become less expensive, more common, and more powerful, they have come to be used more frequently for instruction in schools, including colleges. Since this trend is likely to continue, it is important to understand what has been done in computer-based instruction (CBI) and how it can be done better.

Doshisha University began offering English classes using CBI at its Tanabe Campus in 1988 (Ishihara, Kitao, and Yamauchi, 1992; Kitao, 1992a; Kitao, Ishihara and Yamauchi, 1992). In this paper, I will report on the effects and problems of two CBI English reading classes held in 1990 and discuss what can be done to make foreign language CBI more effective.

Administration of English Reading CBI Classes and Students

The teachers involved in CBI gave an orientation for CBI classes before students enrolled. We explained the content of the CBI classes, their administration, evaluations, and previous classes. We emphasized that any computer or typing skills students would need would be taught in the class. We also emphasized that attendance would be very important. About 80% of the students enrolled for their first choice and the rest for their second choice. Twenty-five students enrolled in each of two classes. Only one student had had any experience in typing or word processing.

Objectives of the CBI Classes

The purpose of my CBI reading classes was to have students read English passages without translating them into Japanese. Students study sentences, sentence connections, and the organization of paragraphs before they read longer passages. Since students were not familiar with the organization of paragraphs in English, we put a great deal of emphasis on paragraphs. Students practiced with muitiple choice questions (for which students had to enter the number of the correct answer only), fill-in-the-blank questions (for which students had to enter a word or phrase to fill in the blank in a sentence given in answer to a question or retype the whole sentence with the blank filled in), and error correction questions (in which students were given a statement with an error and asked to correct the error) using computers and teacher-made computer programs and materials. (At the end of each file, the student is shown the percentage correct on the first try, the percentage correct on the second try, and the amount of time taken.) The goal of teaching content was to learn about American culture. At the beginning of the

first semester, students had two class-long orientations, typing practice, multiple choice, fill-in-the-blank and error correction grammar questions. They started reading paragraphs-length passages. In order to keep students active in studying, various types of exercises were given each class.

The First Semester

The Orientation

There were thirteen classes, including one during the final exam period in the first semester. The orientation was given in the first two classes. I explained the purpose and content of the class, text materials, expected results, evaluations, rules and regulations for using the TSS rooms and computers, transferring of files between the host computer and terminals, checking of the files, use of the bulletin board, filling in of record charts, typing etc., using a 14-page orientation manual (Kitao, 1992b). Since these would be very important for class administration, I explained them clearly along with a demonstration and let students have hands-on practice. I also gave quizzes over the material covered in the orientation, with previous notice, but an average of only 60% of the answers were right for the first orientation and only 70% for the second orientation. I was shocked at how little students had learned.

Activities and Exercises

I gave the students a list of the graded readers available in our library and gave them instructions on reading them and on writing reports on them using printed materials. (See "Independent Reading in English--Use of Graded Readers in the Library English as a Second Language Corner" in this volume.) I thought that it would be good

for them to read from printed pages as well as computer screens, since long reading passages in particular are very difficult to read on a computer screen.

I explained how to use a typing program "LTYPE" and had students practice typing. However, not many students actually practiced typing with it. I taught students how to place their fingers in home position again and again using the typing exercises I had developed, because many students tended to use the wrong fingers. Since typing should not require much thinking, I gave the students easy grammar exercises which required some typing. The results were 75.3% right for the first time and 87.1% for the second time. (In contrast, for typing exercises, the average was 91% correct for the first time and more than 98% for the second time.) This might mean that students could not think well while typing or that they could not do exercises that required them to think about two things at the same time.

I gave students a reading comprehension test (Form G: See "Japanese College Students' English Reading Ability" in this volume) and American culture tests, which I had given on paper to students in previous classes (Kitao, 1989). The students in the computer classes scored more than 50% right in the dialogue and the essay. The mean score was 53.3%, which was very low, and the time spent was 32 minutes 56 seconds, which was slow compared with the results of previous studies, which were done on paper rather than on a computer. In contrast, the mean score was 45% on the Test of American Culture, which was higher than any group which had taken it, and the time required was 26 minutes and 40 seconds, which was fast compared with previous studies (Kitao, 1977; Kitao, 1979; Kitao, 1980; Kitao, 1982; Kitao, 1989). Students did very well if they could see all questions and cues on one screen, but they did not do as well if they had to change screens many times.

I gave three parallel TOEFL grammar exercises, with 280 multiple choice, fill-in-the-blank, and error correction questions. I gave students 200 similar multiple-choice questions after 280 multiple-choice TOEFL questions and before 280 fill-in-the-blank questions. Students felt that the multiple choice questions were easiest and the error correction questions most difficult. However, their scores were slightly higher on the error correction questions than the fill-in-the-blank questions. (See table.) Students took a little longer, on average, to answer the fill-in-the blank questions than the multiple choice questions, but they took three times as long to finish the error correction questions as the multiple choice. They averaged less than 60% correct on all forms, indicating that these questions were too difficult, since an average of 80% would be considered to indicate an appropriate difficulty level. Scores improved much more on the multiple-choice questions than fill-in-the-blank or error correction questions. They obtained about 60% right in the second time for fill-in-the-blank and error correction questions, indicating that these were very difficult.

Table Results of TOEFL Exercises

Material	NQ	Time	1	2
Multiple-Choice	280	1:21:54	58.4%	79.8%
(TOEFL) Review	40	9:50	63.0%	82.4%
Multiple-Choice	200	53:58	54.3%	77.4%
(General) Review	40	10:35	61.2%	81.0%
Fill-in Exercise	280	1:44:57	47.4%	59.3%
(TOEFL) Review	40	14:29	55.3%	67.7%
Error Correction	280	4:00:00	51.6%	61.7%
(TOEFL) Review	40	27:01	65.4%	74.0%

N.B.: NQ = number of question

1 = first try

2 = second try

I took every seventh question from three TOEFL files and every fifth question from 200 multiple-choice questions and made review questions. I gave the review questions a week after the original exercises, and the results are reported in the above table. Students improved their scores four to seven percentage points and their times on every type of review question, but they improved most on error correction questions. I talked to the students, who indicated that they did not remember much about the questions that they had answered the previous week. Judging from the fact that a week had elapsed and that the scores improved relatively little.

Students had difficulty with exercises that required them to connect sentences, particularly when they had to fill in connecting words. There were lessons before the exercises that provided examples and instructions, but students might have been confused by the many possible connecting words.

Students were also given reading materials on various subjects during the first semester and also in the second semester. The reading exercises were done by presenting students with a passage on the screen, and then questions about the reading, one on each screen. If the student answered the question incorrectly, the paragraph in which the answer appeared was shown again, and the student had another chance to answer the question. If the answer was still incorrect, the correct answer was given, and the student went on to the next question.

Some reading materials on comparisons between Japanese and American cultures were given. Students should have already been very familiar with the information about Japanese culture, but they had difficulty answering questions about it. This m[illegible]ave been due to the fact that they were required to fill in the [illegible]anks in order to answer the questions.

I gave the students reading and listening tasks on Niagara Falls and New York City as homework. I found that about 11 students just copied their friends' answers. I talked to those students personally, and they stopped copying.

I found that if their work was not going to be evaluated, students often did not take it very seriously. They were willing to work hard for a grade, it seemed, but not just for the sake of learning or developing skills.

Overall Results of the First Semester

The attendance rate for the CAI classes as a whole was 97.1%, which is much higher than my other English classes. Most of the absences were during Golden Week. Only one student out of fifty dropped (this student had quit attending other classes as well), which again was a much lower rate than in other English classes I had taught.

During the course of the first semester, students worked on 2,259 questions (excluding typing exercises) for an average of 17 hours 42 minutes and 32 seconds. I estimated that the fastest student finished in about 12 hours and the slowest one in about 35 hours. Including typing exercises, an average student spent about 28 hours working on the files themselves, so including booting up, transferring files, and finishing, students probably spent over 33 hours on average.

Orientations are very important for smooth class administration. I gave students a fourteen-page handout and explained it step by step, but students did not do well on quizzes over the material. It is very important to give students good orientations, so that they can remember important information.

It was my observation that students would work hard to earn good grades but would not work hard on exercises such as LTYPE for

which they were not being evaluated. It is important to find out how to allocate points for their work, so that they would do their best.

Students scored lower on the reading test, Form G, using a computer, than students who did it on paper. This may have been partly because they could not see much information on one screen, so they would forgot what had been on the previous screen, they did not bother to go back to check information, etc. We need to consider the most effective way to present reading materials on the screen.

Students scored higher on the Test of American Culture than students who had previously done it on paper. They may have found this kind of test, in which the questions are short and could be seen on one screen, easier to deal with than a test like the reading test, in which the readings were too long to appear on the same screen with the questions.

Though the three sets of TOEFL questions were parallel, students did not do well on those. These questions were too difficult. They had problems spelling words accurately because they were not used to writing English words. They thought that multiple-choice questions were much easier.

Error correction exercises were time-consuming, though they were easier than fill-in-the-blank questions. Students spent a lot of time finding the error, but once they had found it, they could correct it easily.

When students had to type a whole sentence to answer a question, this required a lot of time. Typing itself is time consuming, and it is a good idea to avoid using an answer format that requires a lot of typing unless the point of the exercise is to practice typing.

Though students found questions that were difficult frustrating, they were very active in studying and were willing to spend a large amount of time finishing all the tasks. Most of the students

expressed satisfaction with these classes. They were amazed at the improvement in their typing skills.

Summer Break

TESOL Summer Institute Computer Course

During the summer between the first and second semesters, I audited the CAI class at TESOL Summer Institute at Michigan State University. I learned to use a Macintosh word processing program; to make graphics, drills and tutorials using authoring programs; to make grading sheets with a spread sheet program; and to use adventure games, simulations, and interactive video programs using video discs. This course was helpful for teachers using a Macintosh computer to teach English. This course reassured me that the materials we have developed at Doshisha University are based on sound instructional theories for CAI.

Revisions of Programs

During the summer vacation in 1990, we improved our programs. For the CMI programs, for example, we changed the program so that the computer would make a list of students who did not do exercises, lists ranked by score and time, and totals for files with the list of students who did not do any file. With these improvements, it became easier to check on how individual students were doing. For the CAI programs, we changed the program to allow us to set a maximum time and minimum score so that if students spent more time or obtained lower scores, they had to do the file again. With these changes, we could easily see how students were doing on various files and control the conditions such as the maximum time and minimum score for the exercises.

Since the students had not done any exercises with a computer for the two and half months of the summer vacation, it took some time before they got used to working with a computer again. They required a longer time to do exercises, and they could not finish as many files as they had been able to finish at the end of the first semester. Therefore, it is necessary to give students fewer files at the beginning of the second semester and gradually increase the assignments.

I had given the students a textbook to study during the summer vacation, and I gave them several tests over the material during the second semester. The results were not good, and it did not appear that the students had studied hard.

Setting maximum times and minimum scores changed the students' study behaviors. I set the standards using previous records, and they were set at a level that would allow almost everyone to meet them. However, they seemed to become a kind of psychological barrier. If students had to do the same file again after working on exercises for a long time, they seemed to lose their motivation to study further. It is obvious that psychological aspects of learning was very important to the effective use of CAI.

I started the second semester with multiple-choice questions, since the students had to get used to the keyboard again. I introduced some questions like those on standardized tests such as the TOEIC or STEP. I collected answers for the summer vacation assignment at the beginning of the semester. I gave five tests on it over a period of five weeks. I gave students materials on the organization of paragraphs, nonverbal communication, holidays in the United States, American history, and TOEIC grammar problems. I made assignments

fourteen times during the semester, including once during the final exam period. I gave students various types of material each week to provide some variety of tasks and arranged them from those requiring less typing to those requiring more typing. Throughout the semester, I assigned 186 files (3,641 questions) as requirements and 22 typing exercise files (960 questions) for optional practice. The average student spent 22 hours, 4 minutes and 49 seconds on the required assignments, and 3 hours, 1 minute and 21 seconds on typing.

I gave the students the same typing exercises I had given them in the first semester. On average, they obtained slightly higher scores. (I assume that there was a ceiling effect, since the scores were already very high.) They also finished 20-50% faster. Giving a maximum time increased typing speed. Typing exercises were optional, and less than two thirds of the students did most of the files. When there were many required assignments, very few students did the typing exercises. When making assignments, it is important to be aware of how much work students can reasonably be expected to do each week.

The results of the exercises covering the summer assignment were not very good. The CAI exercises that covered the material that the students studied over the summer included questions over the material but not the reading passages themselves. All of the questions were different from the questions in the textbook. This might have worked better if I had given some of the same questions or provided the text as a hint after students gave a wrong answer.

I gave the same questions as Part V (grammar and vocabulary questions) & VI (correction of grammatical errors) of the first and third TOEIC. The average scores were 380, 440, 350, and 380 respectively, following the conversion information given for the TOEIC. These scores are in the middle of D level, which means that they could make themselves minimally understood in ordinary

conversation, which is good for non-English major sophomores.

I gave exercises for the TOEIC and STEP with a multiple-choice questions, without providing hints. Students did very poorly for the first trial and not much better for the second trial. The multiple-choice questions are not necessarily easy, but students felt more comfortable with them than fill-in-the blank or write-in questions.

I gave grammar exercises making use of points of grammar that Japanese students often have difficulty with. These were difficult, and since there were no hints, the scores for the second trial did not improve much. This type of exercise would be more effective with good hints.

I gave reading comprehension exercises for paragraph-length readings and exercises to help students understand the organization of paragraphs at the same time. For the reading comprehension exercises, students read a paragraph and then worked on comprehension questions. Students saw a question and an answer with a blank in it, and they had to fill in the blank. If they got the answer wrong, they could read the same paragraph over and try to answer again. For a total of 351 questions, answers were 40.5% correct for the first trial was and 64.7% correct for the second trial. Students had had very little practice reading without translation, and they had difficulty remembering the important information. We need to give students more practice of this kind.

Exercises to help students understand the organization of paragraphs included explanations about paragraphs. Organization, development, topic sentences, main ideas, transitions, coherence, and types of paragraphs were explained. Students had difficulty with the questions at first, but they did better as time passed.

I also gave the students a continuation of a series of readings begun in the first semester on comparisons of Japanese and American

cultures. Students did better on scores and especially on time. The paragraph reading comprehension exercises and the help in understanding paragraph organization might have had an influence. Another factor is that students seem to spend much time on unfamiliar exercises, but once they get used to a new type of exercise, they can finish it much faster.

In December, I gave the Form G Reading Test which I had given in May. Students' average score was slightly above 50%, which was not much of an improvement over their scores in May, but they required about half as much time to finish. The first time they took the test, they were not accustomed to taking a test on a computer, but after doing many exercises on a computer, their speed had improved. However, students may still have been paying too much attention to the use of the computer, or it may be that the materials are too difficult.

I also gave the Form H Reading Test (See "Japanese College Students' English Reading Ability" in this volume), which is a more difficult version of Form G. The students averaged only 42.3% correct, though they only spent about 17 minutes, which is half as much time as previous students had spent on the paper test. It may be that students pay less attention to CAI materials than paper materials.

I also gave reading materials which were longer than one paragraph on such subjects as holidays in the United States, nonverbal communication, and American history. The difficulty levels varied a great deal, depending on the reading and the questions. Students had difficulty reading long passages. Exercises which required students to answer in complete sentences were particularly difficult and frustrating for students. In their high school English courses, they had not studied much on how to write in complete sentences. I also

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found that if students had to change screens to continue to read the passage, they would forget what they had read in the previous screen. Changing screens takes a little time, and that apparently hinders students' understanding. Long passages might be presented better with printed materials, because getting everything on one screen is not always possible when using a computer.

For students' self study, I made TOEIC grammar exercises with explanations in Japanese. The students felt comfortable doing exercises with Japanese explanations. These materials were very easy, with multiple-choice questions. For CAI, easier materials seem to be most effective. However, we often tend to make materials too difficult for students.

For these courses, I developed various kinds of materials and learned a lot about the characteristics of good and bad CAI materials. I found that materials work best when they are easy to understand, when explanations are clear, and when there are many examples. Procedures for studying have to be easy to understand and clearly shown, and answering the questions has to be easy. If students are not good at typing, it is necessary to use exercises that do not require much typing. The purpose of the materials should be clear and the materials appropriate to that goal. If the purpose is comprehension, for example, the question should not require much writing. Reading materials should be short and easy. For CAI, many easy lessons seem to be more effective than a few difficult lessons.

After the semester ended, we improved our programs again. We made a program that lists students' errors for each question. This allowed us to see the tendencies in students' mistakes and helped us improve the questions. We made it easy for students to see the number of questions, the maximum allowed time, the minimum required score, how many repeats they needed to do, and the length of time they have

spent. We also made a change so that the results would show how many times students had done each file. In order to enhance the individualized instruction, we made it possible for students to set the maximum time and the minimum score as well as whether they would see the hints and correct answers when they give wrong answers.

Using the error list which we developed, I revised the materials. If 50-60% or less fewer got a question right, I tried to analyze the cause and change the question to make it clearer, easier, or whatever was appropriate.

Conclusion

CAI is growing rapidly, and there is still much to be learned about how computers can be used most effectively in language teaching. Through the experiences of teachers, we can gain insights into using computers to teach language.

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